

532  
D1  
14. (Amended) The air monitoring system of claim 13, wherein the air monitoring unit is adapted to download information from the remote data center capable of changing the operational parameters of the air monitoring unit.

Q3  
15. (Amended) The air monitoring system of claim 9, wherein the communications link includes an Internet.

16. (Amended) An air monitoring system, comprising:  
an air monitoring unit including at least one sensor for measuring air quality parameter data, and a computer for storing the data received from the sensor;  
a remote data center including a database for storing the air quality parameter data and receiving inputted characteristics, and an expert system interactive with the air quality parameter data for analysis of the data in relation to certain inputted characteristics; and  
a communication link between the data center and the air monitoring unit;  
wherein the remote data center downloads information to the air monitoring unit through the communication link to modify the function of the air monitoring unit.

Q4  
22. (Amended) The air monitoring system of claim 16, wherein the communications link includes an Internet.

Q5  
28. (Amended) The air monitoring unit of claim 23, further comprising a standardized electrical interface to support at least two sensor cards.

Q6  
Qn't  
30. (Amended) The air monitoring unit of claim 23, further comprising a sensor for monitoring radon; and having at least one sensor for air monitoring purposes.

31. (Amended) An air monitoring system, comprising:  
an air monitoring unit including a grab sampler contained within the air monitoring unit for acquiring an air sample;  
a remote control unit for controlling the air monitoring unit; and

Q6  
and  
a communications link between the remote control unit and the air monitoring unit;

wherein the remote control unit is adapted to download a command to the air monitoring unit to trigger the grab sampler to acquire an air sample.

Q7  
45. (Amended) Apparatus comprising:

an air monitoring system including at least one sensor for acquiring air quality data at a selected indoor location; and

a control site for controlling operation of the air monitoring system through an Internet.

Q8  
51. (Amended) Apparatus as defined in claim 45, wherein said air monitoring system includes a portable air monitoring unit that is movable to different indoor locations.

52. (Amended) Apparatus as defined in claim 45, wherein said air monitoring system includes an installed system for monitoring air quality in multiple indoor locations.

Q9  
63. (Amended) A sensor card for use in an air quality monitoring system, comprising:  
a card having a connector for electrical connection to the air quality monitoring system;

an air quality sensor mounted on said card for providing sensor data through said connector to the air quality monitoring system; and

a shroud mounted on said card for defining an air flow path to said air quality sensor, said shroud having an inlet and outlet.

Q10  
and  
65. (Amended) A sensor card as defined in claim 63, further comprising a perforated divider mounted in said shroud for controlling air flow through said shroud.

66. (Amended) A sensor card as defined in claim 63, further comprising means for producing a substantially laminar air flow through said shroud.

Q10  
Q11

67. (Amended) A sensor card as defined in claim 63, wherein the inlet and outlet of said shroud are provided with quick disconnect connectors.

Q11

78. (Amended) An air quality monitoring unit comprising:  
a housing;  
a plurality of easily removable air quality sensors mounted in said housing;  
a programmable control unit having an interface to said air quality sensors,  
wherein said control unit is programmable so as to customize the air quality monitoring unit for operation with different sensors; and  
a manifold for transporting air from an inlet to said air quality sensor;  
wherein said control unit includes an Internet interface for receiving operating information through the Internet.

79. (Amended) An air quality monitoring unit as defined in claim 78, wherein at least one of said air quality sensors is mounted on a sensor card plugged into a card cage in said housing.

Q12

81. (Amended) An air quality monitoring unit as defined in claim 78 further comprising at least one sensor located in said manifold near said inlet for sensing a parameter that changes rapidly.

82. (Amended) An air quality monitoring unit as defined in claim 78 further comprising a vacuum pump for drawing air through said inlet to said plurality of air quality sensors.

Q13

87. (Amended) An air quality monitoring unit as defined in claim 78, further comprising a sensor interface card coupled between said air quality sensors and said control unit.

Please add new claims 88-148 as follows:

88. (New) The air monitoring system of claim 1 wherein expert system is used at least in part to detect anomalies in the air monitoring unit.

89. (New) The air monitoring system of claim 1 wherein expert system is used at least in part to detect data that is tampered or faulty.

90. (New) The air monitoring system of claim 9, wherein the air monitoring unit includes a program to instruct the air monitoring unit in measuring air quality parameter data, and the air monitoring unit is adapted to download information from the remote data center to change the program.

91. (New) The air monitoring system of claim 9, wherein the air monitoring unit includes a set-up parameter, and the air monitoring unit is adapted to download information from the remote data center to change the set-up parameter in the air monitoring unit.

92. (New) The air monitoring system of claim 10, wherein the air monitoring unit is programmed to upload air quality parameter data automatically at periodic intervals.

93. (New) An air monitoring system, comprising:  
an air monitoring unit including at least one sensor for measuring air quality parameter data;  
wherein the air monitoring unit is adapted to download information from a remote control unit through a communication link in order to create at least one database location within the air monitoring unit to store air quality parameter data from a given building area that is linked to corresponding database locations in the remote control unit to which the air quality parameter data from that area will be stored.

94. (New) The air monitoring system of claim 15, wherein the downloaded information contains in part a user supplied label for the building area to be measured.

95. (New) The air monitoring unit of claim 25, further comprising at least one additional removable card including at least one air monitoring sensor located within the closed air path.

96. (New) The air monitoring unit of claim 25, further comprising at least one additional fixed card including at least one air monitoring sensor located within the closed air path.

97. (New) The air monitoring system of claim 31, wherein the communications link includes an Internet.

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98. (New) The air monitoring system of claim 31, wherein the communications link includes a local area network.

99. (New) The air monitoring system of claim 31, wherein the command from the remote control unit is initiated by manual control.

100. (New) The air monitoring system of claim 31, wherein the command is initiated based on at least one of commands or input from another building system.

101. (New) The air monitoring system of claim 100, wherein the other building system is a fire alarm system.

102. (New) The air monitoring system of claim 100, wherein the other building system is a building control system.

103. (New) The air monitoring system of claim 100, wherein the other building system is a building ventilation system.

104. (New) Apparatus as defined in claim 34, wherein the expert system operates at least on occupant symptom data from the building location.

105. (New) Apparatus as defined in claim 34, wherein the expert system operates at least on user supplied information about the building location.

106. (New) Apparatus as defined in claim 34, wherein the expert system operates at least on historical indoor air quality data in addition to current indoor air quality data from the building location.

107. (New) Apparatus as defined in claim 34, wherein the expert system can learn or improve its effectiveness by accepting user feedback on the effectiveness of its conclusions.

Q14  
Qn4  
108. (New) Apparatus as defined in claim 107, wherein data mining is used to assist the learning process.

109. (New) Apparatus as defined in claim 34, wherein the expert system includes at least rule based methods.

110. (New) Apparatus as defined in claim 34, wherein the expert system includes at least case based methods.

111. (New) Apparatus as defined in claim 34, wherein the expert system includes at least pattern recognition methods.

112. (New) Apparatus as defined in claim 34, wherein the expert system includes at least fuzzy logic.

113. (New) Apparatus as defined in claim 34, wherein the expert system uses two or more of rule, case, or pattern recognition based methods and a means to combine their results.

114. (New) Apparatus as defined in claim 34, wherein the expert system uses blackboarding techniques to combine multiple expert system methods.

115. (New) Apparatus as defined in claim 114, wherein a web session is used as the expert system blackboard.

116. (New) Apparatus as defined in claim 45, wherein said air monitoring system includes a GPS for determining the location automatically of the selected indoor space.

117. (New) A method for determining the location of an air monitoring unit, comprising the steps of:

providing a GPS in an air monitoring unit;

determining the location of the air monitoring unit from previously downloaded test locations, using information from the GPS.

118. (New) An air quality monitoring system as defined in claim 74, wherein said grab sample unit is commanded based at least on data from a TVOC sensor.

119. (New) An air quality monitoring system as defined in claim 75, wherein said grab sample unit is commanded based at least on data from a particle sensor.

120. (New) An air quality monitoring system as defined in claim 70, wherein said acquired sensor data includes data from at least two sensors.

121. (New) An air quality monitoring unit as defined in claim 78, wherein the air monitoring unit also includes other air quality sensors that are not easily removable.

122. (New) An air monitoring system, comprising:  
an air monitoring unit including at least one sensor for measuring air quality parameter data; and  
an Internet interface accessible through a wireless communication link,

wherein the air monitoring unit is adapted to be in communication with the Internet interface through the wireless communication link.

123. (New) The air monitoring system of claim 122 wherein the air monitoring unit is adapted to upload information to the Internet interface through the wireless communication link.

124. (New) The air quality monitoring system as of claim 122, wherein air quality parameter data is uploaded automatically on a periodic basis.

125. (New) The air monitoring system of claim 122 wherein the air monitoring unit is adapted to download information from the Internet interface through the wireless communication link.

126. (New) The air monitoring system of claim 122 wherein the air monitoring unit is adapted to upload information to the Internet interface from the air monitoring unit and download information to the air monitoring unit from the Internet interface through the wireless communication link.

127. (New) The air monitoring system of claim 122 further comprising:  
a base unit, wherein the base station is adapted to be connected to the Internet interface by a local wireless communication link.

128. (New) The air monitoring unit of claim 127, wherein the local wireless communication link is connected to a phone line.

129. (New) The air monitoring unit of claim 122, wherein the local wireless communications link is connected to an Ethernet system.

<sup>130</sup>  
129. (New) The air monitoring unit of claim 122 wherein the wireless communications link is connected to an Ethernet system.



<sup>131</sup>  
~~130.~~ (New) The air monitoring unit of claim 122 wherein the wireless communications link is connected to a local area network.

<sup>132</sup>  
~~131.~~ (New) The air monitoring unit of claim 122 wherein the wireless communications link is connected to a building control network.

<sup>133</sup>  
~~132.~~ (New) The air monitoring unit of claim 122 wherein the air monitoring unit includes at least two gas sensors.

<sup>134</sup>  
~~133.~~ (New) The air monitoring unit of claim 122 wherein the air monitoring unit includes at least a carbon dioxide sensor and a particle sensor.

<sup>135</sup>  
~~134.~~ (New) The air monitoring unit of claim 122, wherein the wireless communication link includes a cellular phone.

<sup>136</sup>  
~~135.~~ (New) A method of making an indoor air quality scorecard, the method comprising the steps of:

collecting indoor air quality data for at least two distinct areas;

comparing the indoor air quality data of the at least two distinct areas to each other; and

ranking the distinct areas according to a criteria based on their indoor air quality data.

<sup>137</sup>  
~~136.~~ (New) The method of claim <sup>136</sup>~~135~~, wherein the step of collecting comprises measuring various air quality parameters.

<sup>138</sup>  
~~137.~~ (New) The method of claim <sup>137</sup>~~136~~ wherein the step of collecting data involves sending data via an Internet to a database.

<sup>139</sup>  
~~138.~~ (New) The method of claim ~~136~~<sup>137</sup> wherein the step of collecting data involves data from at least a carbon dioxide sensor, a particle sensor, and a humidity sensor.

<sup>140</sup>  
~~139.~~ (New) The method of claim ~~136~~<sup>137</sup>, wherein the step of comparing comprises combining multiple air quality parameters into at least one index.

<sup>141</sup>  
~~140.~~ (New) The method of claim ~~139~~<sup>140</sup> wherein the step of ranking comprises ordering the distinct areas based on the index for each distinct area.

<sup>142</sup>  
~~141.~~ (New) The method of claim ~~136~~<sup>137</sup>, where the step of comparing comprises combining multiple air quality parameters into at least one subindex.

<sup>143</sup>  
~~142.~~ (New) The method of claim ~~141~~<sup>142</sup> wherein the step of comparing comprises at least three subindices.

<sup>144</sup>  
~~143.~~ (New) The method of claim ~~142~~<sup>143</sup> wherein the step of comparing comprises rating the distinct areas with indices for one or more of comfort, healthiness and operational efficiency.

<sup>145</sup>  
~~144.~~ (New) The method of claim ~~142~~<sup>143</sup> wherein the step of comparing comprises combining the subindices in a weighted manner to form an index for each distinct area.

<sup>146</sup>  
~~145.~~ (New) The method of claim ~~144~~<sup>145</sup> wherein the step of ranking comprises ordering the distinct areas based on the index for each distinct area.

<sup>147</sup>  
~~146.~~ (New) The method of claim ~~136~~<sup>137</sup> wherein the step of comparing comprises combining the indoor air quality data in a weighted manner using the measurements of the air quality parameters.

<sup>148</sup>  
~~147.~~ (New) The method of claim ~~135~~<sup>136</sup> wherein the step of comparing comprises using an expert system to compare the indoor air quality data.